

Clarke®

Start-N-charge



HEAVY DUTY BATTERY BOOSTERS / CHARGERS

MODEL Nos. BC260 • BC330 • BC420

OPERATING & MAINTENANCE
INSTRUCTIONS



1104



SPECIFICATIONS

MODEL	260	330	420
Supply Voltage	230	230	230
Max Charge (Amps)	30	50 (cont)	60 (cont)
Max Boost (Amps)	250	300	400
Boost/Charge (Volts)	12/24	12/24	12/24
Internal Fuse Rating	250A	300A	400A
Internal Fuse Part No.	EM22220009	EM22220011	EM22220012
Part No.	6225051	6225051	6225051

For Spare Parts and Service, please contact your nearest dealer, or CLARKE International, on one of the following numbers.

PARTS & SERVICE TEL: 020 8988 7400

PARTS & SERVICE FAX: 020 8558 3622

or e-mail as follows:

PARTS: Parts@clarkeinternational.com

SERVICE: Service@clarkeinternational.com



Thank you for purchasing this CLARKE Battery Charger. These units are suitable for charging and boosting 12 or 24 Volt lead acid batteries.

Before attempting to operate the unit, please read this instruction manual thoroughly, and follow all directions carefully. By doing so you will ensure the safety of yourself, and others around you, and at the same time, you should look forward to the unit giving long and trouble free service.

GUARANTEE

This product is guaranteed against faults in manufacture for 12 months from date of purchase. Please keep your receipt as proof of purchase.

This guarantee is invalid if the product has been found to have been abused in any way, or not used for the purpose for which it was intended, or to have been tampered with in any way. The reason for return must be clearly stated.

This guarantee does not affect your statutory rights.

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IMPORTANT: SAFETY PRECAUTIONS

PLEASE READ BEFORE USING THIS UNIT

1. **WARNING:** Some electronic equipment can be damaged by boost charging or use of start facility. Check your vehicle handbook before using your Start 'N' Charge. If in doubt consult the vehicle manufacturer. Nevertheless, you should not operate this equipment unless you are fully conversant with vehicle electrical systems, and battery charging techniques.
2. **WARNING:** Because highly inflammable hydrogen gas is released in the process of battery charging, please remember to switch OFF the charger first, and so avoid sparking which will occur when CONNECTING OR DISCONNECTING LIVE LEADS.
3. Black negative (-ve) lead must always be clipped to the negative, and Red positive (+ve) lead must always be clipped to the positive.
When charging with battery installed in vehicle, or boosting, **FIRST** connect the appropriate lead to the **UNEARTHED** battery terminal (on most modern cars this is the positive (+ve) terminal), then connect the other lead to the chassis (or a suitable engine bolt) away from the battery and fuel line. It is advisable to disconnect the unearthed terminal from the battery, when charging in situ.
When disconnecting, remove the chassis lead **FIRST**, then the battery lead.
4. To prevent battery overheating and consequent damage, use the **BOOST** facility sparingly and do not exceed our recommendations.
5. Battery acid is highly corrosive. If spillage occurs, wipe off immediately and wash copiously with water. Particularly avoid contact with the eyes, but if this occurs, you must seek medical advice.
6. When charging is completed, ensure that the vehicle battery leads are secured to the proper terminals which should be clean and lightly smeared with petroleum jelly to prevent corrosion. Finally, re-check the electrolyte level.
7. Do not expose this unit to rain.
8. Never touch together the negative and positive leads on this unit whilst the unit is switched on.
9. Never attempt any electrical or mechanical repair. If you have a problem with your machine contact your local dealer for service information.
10. **WARNING:** Certain types of sealed or maintenance-free batteries need extra care when charging. Please consult battery manufacturers instructions before using this unit.
11. **WARNING:** Since toxic fumes may be released during battery charging, **ONLY USE THIS UNIT IN A WELL VENTILATED AREA.**
12. Before charging ensure the battery terminals are clean and that the cells are filled with electrolyte to the correct level by adding distilled water where necessary.

ELECTRICAL CONNECTION

Connect the three core mains lead to a suitable industrial supply isolator, or heavy duty plug. These chargers must be connected to a supply having a rated capacity of greater than 13 Amps.

WARNING: A 13 Amp (BS1363) plug is not suitable.

The maximum input amperages for these units are:

BC260 - 30amps, BC330 - 36amps, BC420 - 48amps

WARNING: THIS APPLIANCE MUST BE EARTHD

IMPORTANT: The wires in the mains lead are coloured in accordance with the following code:

Green & Yellow	-	Earth
Blue	-	Neutral
Brown	-	Live

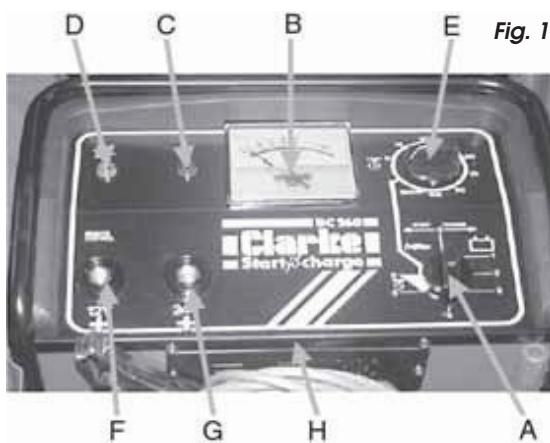
As the colours of the flexible cord of this appliance may not correspond with the coloured markings identifying terminals in your plug proceed as follows:

- Connect GREEN & YELLOW coloured cord to plug terminal marked with a letter 'E' or Earth symbol '⏚' or coloured GREEN or GREEN & YELLOW.
- Connect BROWN cord to terminal marked with a letter L or coloured RED
- Connect BLUE cord to terminal marked with a letter N or coloured BLACK

If in doubt, consult a qualified electrician.

PARTS IDENTIFICATION

A - Current Control Knob
B - Ammeter
C - Thermal Overload Indicator
D - Mains Indicator Lamp
E - Timer Control Knob
F - 12 V Positive Terminal
G - 24 V Positive Terminal
H - Fuse



PROCEDURE FOR NORMAL CHARGING

NOTE: All references in brackets refer to Fig. 1

- 1) Before charging or boosting, ensure that the cells are filled with electrolyte to the correct level by adding distilled water where necessary.
- 2) Where appropriate we recommend that the non-earthed lead on the battery is disconnected prior to charging. It is possible that damage may occur to any electronically controlled system fitted to the vehicle such as engine management, anti-theft alarm, alternator etc.
- 3) Check that the mains supply is OFF and the Current Control Knob (A) is in the 'O' OFF position.
- 4) Connect the appropriate lead to the unearthing battery terminal (on most modern cars this is positive (+ve) terminal), then connect the other lead to the chassis (or a suitable engine bolt) away from the battery and fuel line.

NOTE: Ensure the lead is plugged into the 12V or 24V receptacle, depending upon the voltage of the battery to be charged

- 5) Remove the battery filler caps during charging in order to prevent the build up of dangerous gases within the battery.
- 6) Switch ON the mains supply
- 7) Turn the Current Control Knob (A) to the position necessary to obtain the required charge rate, as indicated on the ammeter.
- 8) Keep the battery on charge until the Ammeter (B) reads zero (or 0-2 amps) or has stopped moving down, then turn the Current Control Knob (A) to the OFF position.
- 10) When disconnecting the charger, disconnect **1.** supply, **2.** chassis conductor and **3.** battery conductor, **IN THAT ORDER.**

Important:

If the fixed positive lead and the fixed negative lead are connected to the wrong terminals, then a flash will occur when the 2nd Clamp is attached. Damage to the charging unit and the battery will be avoided as your START'N CHARGE is fitted with a polarity protection feature. It will however be necessary to replace the internal fuse. Remove the black plastic cover on the back panel (marked 'fuse') and replace the burnt fuse with an exact replacement. See 'Specifications' for replacement fuses.

CHARGING WITH TIMER

1. Follow the same instructions as for NORMAL CHARGING UP TO AND INCLUDING PARA. 6
2. Turn the timer control knob (E) clockwise to the desired charging time setting.
3. Switch ON the mains supply.
4. Turn the Current Control Knob (A) clockwise to position 5 or 6, to obtain the desired charging rate as indicated on the ammeter.

Notes on charging procedure.

- * A complete charge is best done slowly in order to protect your battery. We recommend the charging rate be no more than 10% of the battery capacity rating (AH). eg. a typical battery has a rating of 40 Ampere Hours, therefore the charging rate should be 4 amps, and a complete charge will take 10 hours.
- ** If a low current reading (2 amps or less) is seen on the gauge, this may indicate that the battery is either (a) already fully charged or (b) at the end of its useful life and in need of replacement. Do not charge the battery for longer than is necessary.
Check the SG of the battery with a hydrometer

PROCEDURE FOR ENGINE STARTING

Note: We recommend that before attempting to boost start you charge the battery for 10-15 minutes. This will improve the chance of a first time start, particularly with big engines. When the battery is completely flat, you must charge the battery for 10-15 minutes before attempting to start, otherwise you may cause damage to the vehicle electronic systems.

- a) Check that mains supply switch is OFF and the Current Control Switch is in the OFF position.
- b) Connect the cables as for normal charging.
- c) Switch ON the mains supply.
- d) Turn the key in the vehicles ignition to 'start', and get an assistant to hold the Current Control Knob (A) in the BOOST START position.

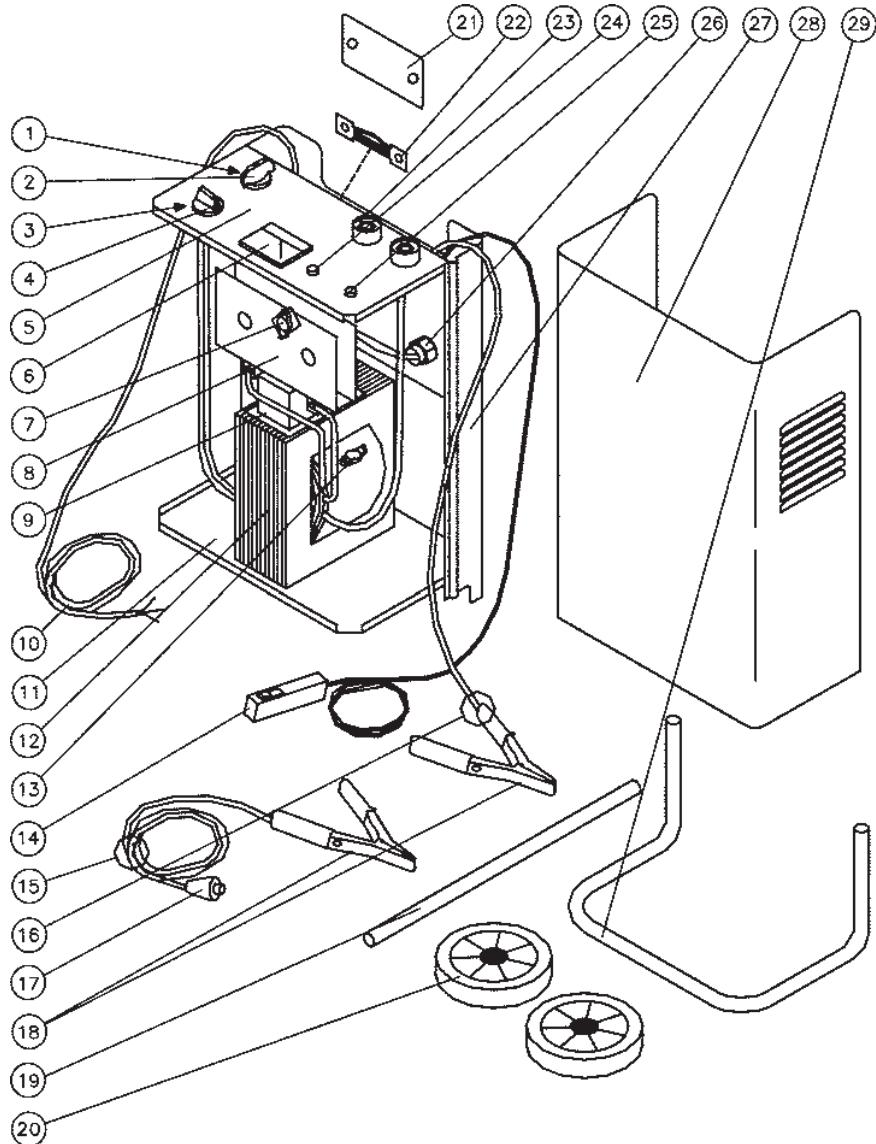
IMMEDIATELY the engine starts, or after a **maximum of 10 seconds**, if the engine fails to start, the Current Control Knob **MUST** be released. Failure to do this may cause damage to some electronic equipment.

IMPORTANT: You must return the Current Control Knob to the OFF position after a maximum of 10 seconds on boost start. Wait at least 30 seconds before repeating. Failure to do this may damage the battery and the Start 'N' Charge unit and may invalidate your guarantee.

NOTE: If the Start and Charge unit is overloaded at any time, a thermal cut out will automatically come into operation, rendering it inoperative. These models are equipped with a thermal overload indicator (D) which will illuminate. Allow approximately 5-10 minutes, or wait for the indicator light to go out before using the unit again.

PARTS DIAGRAM

BC260



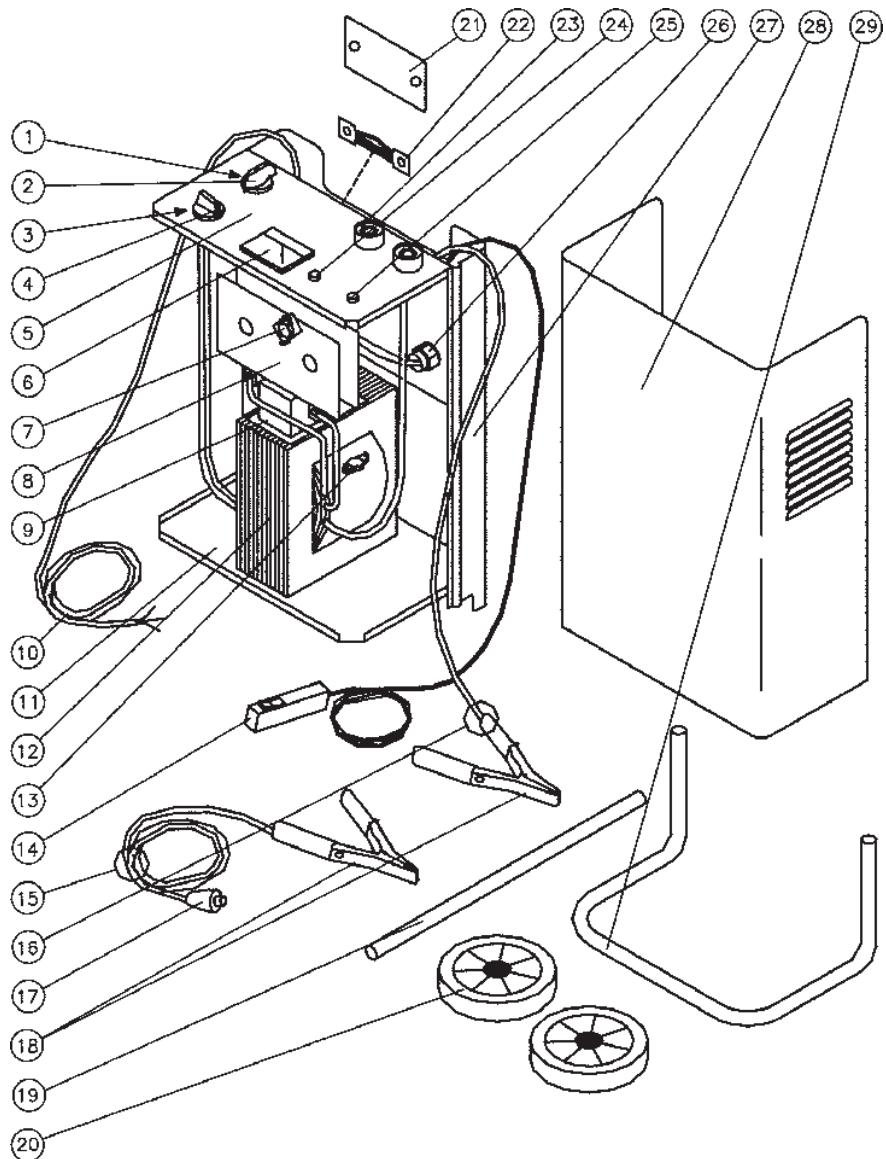
PARTS LIST

BC260

No.	Description		Part No.
1	Switch 12 A	1	EM22205012
2	Switch Knob D.34	1	EM21690015
3	Timer 16A 250V	1	EM22215001
4	Timer Knob	1	EM21690034
5	Control Panel	1	EM33710004
6	Ammeter 30A	1	EM22600015
7	Thermostat + Holder	1	EM04600113
8	Rectifier	1	EM22400007
9	P.C.board For Remote Control	1	EM22700001
10	Input Cable 3x1,5m	1	EM20220014
11	Lower Panel	1	EM33700028
12	Transformer 240V 12/24V	1	EM44105020
13	Thermostat	1	EM22210605
14	Remote Ctrl Cable Without Plug	1	EM40210768
15	Earth Cable 16mm ²	1	EM43200015
16	Black Cable 16mm ²	1	EM43200016
17	Dinsel Plug 25mm ²	1	EM22100001
18	Clamp 120A	2	EM22110005
19	Wheels-axle D.20	1	EM55200001
20	Wheel D.175	2	EM21625009
21	Fuse Box Cover	1	EM21690110
22	Fuse 250A	1	EM22220009
23	Dinsel Socket 25mm ²	2	EM22100002
24	Orange Pilot-lamp 220V	1	EM22610014
25	Green Pilot-lamp 220V	1	EM22610008
26	Cable Clamp D.20	2	EM21605010
27	Front Panel	1	EM33700709
28	Upper Panel	1	EM33705011
29	Handle	1	EM33725003

PARTS DIAGRAM

BC330



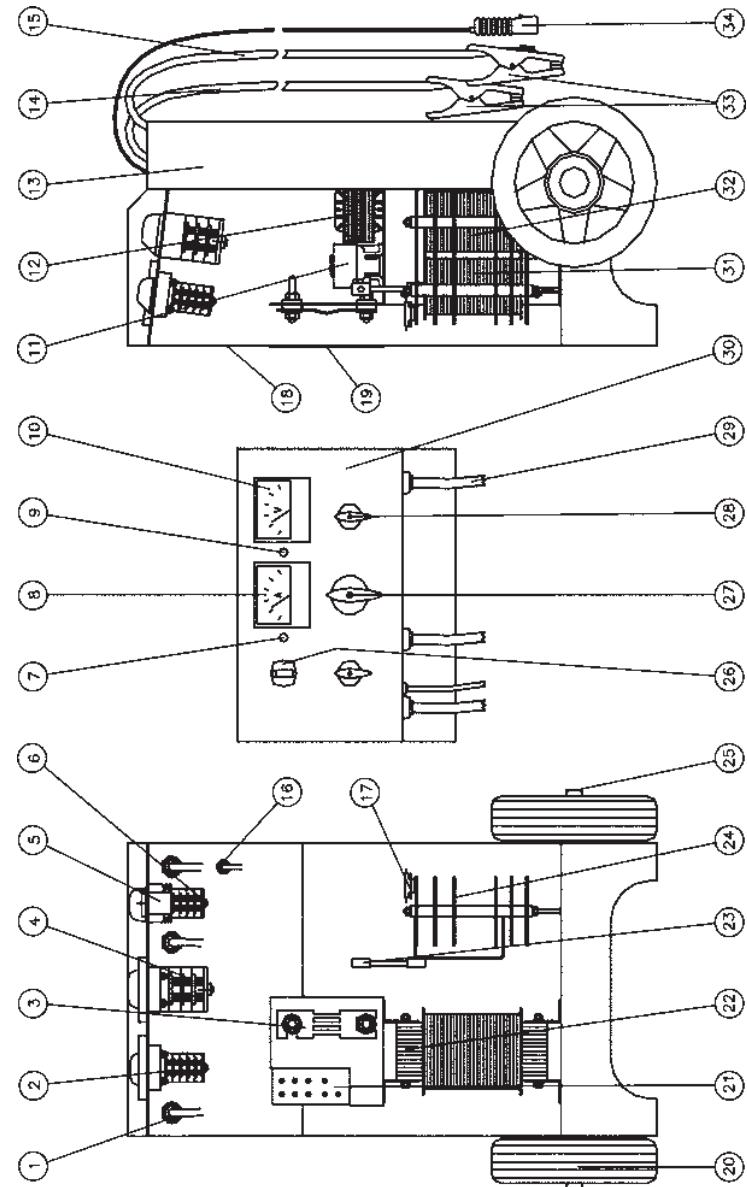
PARTS LIST

BC330

No.	Description		Part No.
01	Switch Knob D.34	1	EM21690015
02	Switch	1	EM22205028
03	Timer Knob	1	EM21690034
04	Timer 16A 250V	1	EM22215001
05	Controlpanel	1	EM33710004
06	Ammeter 50/400 A	1	EM22600019
07	Rectifier	1	EM22400014
08	Complete Thermostat+ Support	1	EM04600113
09	Contactor 24V 10A	1	EM22225005
10	Auxiliary Transformer 220/240V	1	EM44140016
11	PVC Input Cable	1	EM20220020
12	Lower Panel	1	EM33700028
13	Transfor.starter 400 240V 12/24V	1	EM44105016
14	Thermostat	1	EM22210605
15	Remote Control Cable Without Plug	1	EM40210768
16	Red Cable 25mm ²	1	EM43200024
17	Black Cable 25mm ² W/Clamp	1	EM43200025
18	Dinsel Plug 25mm ²	1	EM22100001
19	Earth Clamp 120A	2	EM22110005
20	Wheels-axle D.20	1	EM55200001
21	Wheel D.175	2	EM21625009
22	Fuse Box Cover	1	EM21690110
23	Fuse 400A	1	EM22220012
24	Female Dinse Plug 25mm ²	2	EM22100002
25	Orange Pilot-lamp 220V	1	EM22610014
26	Green Pilot-lamp 220V	1	EM22610008
27	Cable Clamp	2	EM21605010
28	Front Panel	1	EM33700709
29	Upper Panel	1	EM33705011
30	Handle	1	EM33725003

PARTS DIAGRAM

BC420

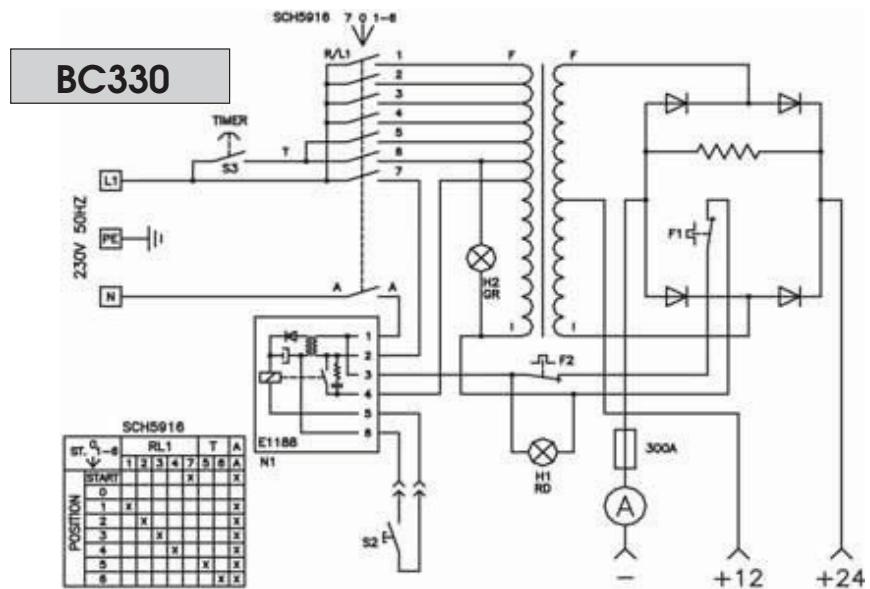
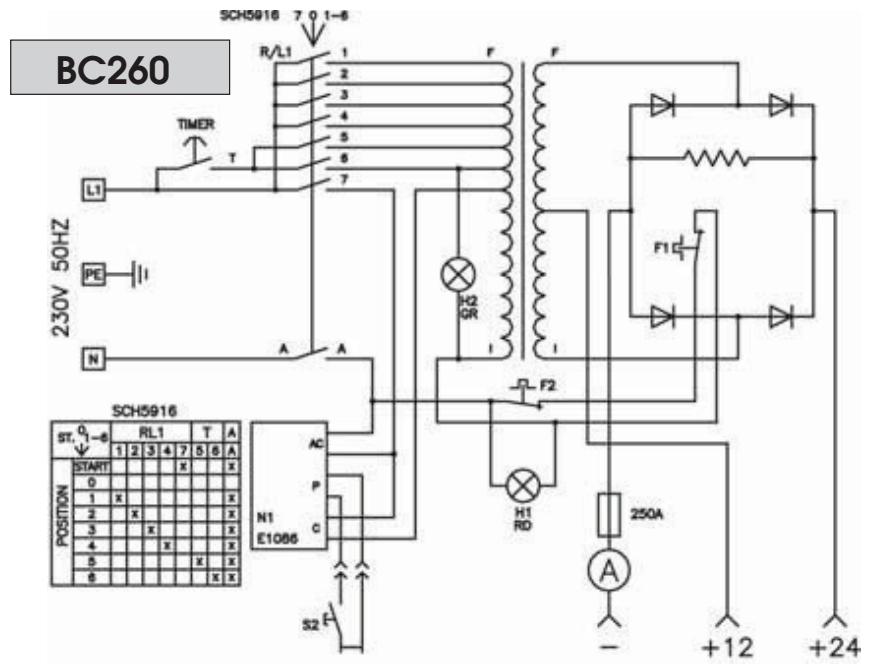


PARTS LIST

BC420

No.	Description		Part No.
1	Switch Knob	1	EM21690015
2	Switch	1	EM22205028
3	Timer Knob	1	EM21690034
4	Timer 16A 250V	1	EM22215001
5	Control panel	1	EM33710004
6	Ammeter 50/400 A	1	EM22600019
7	Rectifier	1	EM22400014
8	Complete Thermostat + Support	1	EM04600113
9	Contactor 24V	1	EM22225005
10	Auxiliary Transformer 220/240V	1	EM44140016
11	PVC Input Cable 3x2,5 m2,5	1	EM20220020
12	Lower Panel	1	EM33700028
13	Transfor. starter 400 240V 12/24V	1	EM44105016
14	Thermostat	1	EM22210605
15	Remote Control Cable Without Plug	1	EM40210768
16	Red Cable 25mm ²	1	EM43200024
17	Black Cable 25mm ²	1	EM43200025
18	Dinse Plug 25mm ²	1	EM22100001
19	Earth Clamp 120A	2	EM22110005
20	Wheels-axle D.20	1	EM55200001
21	Wheel D.175	2	EM21625009
22	Fuse Box Cover	1	EM21690110
23	Fuse 400A	1	EM22220012
24	Female Dinsel Plug 25mm ²	2	EM22100002
25	Orange Pilot-lamp 220V	1	EM22610014
26	Green Pilot-lamp 220V	1	EM22610008
27	Cable Clamp	2	EM21605010
28	Front Panel	1	EM33700709
29	Upper Panel	1	EM33705011
30	Handle	1	EM33725003

WIRING DIAGRAMS



BC420

